Claims

We claim:

1. A function specific property node for use in a graphical program, the node comprising:

a node icon operable to be displayed in the graphical program, wherein the graphical program is operable to perform first functionality; and

a first set of program instructions associated with the node icon, wherein the first set of program instructions are executable to only provide access to a plurality of properties corresponding to a pre-defined object, wherein the plurality of properties specify a configuration of the object, and wherein the object is associated with a subset of the first functionality of the graphical program.

2. The node of claim 1, wherein the property node is statically typed to correspond to the pre-defined object.

3. The node of claim 1, wherein the node icon visually indicates the object.

4. The node of claim 1, wherein the object is operable to perform a specific function in accordance with the plurality of properties, and wherein the specific function is a subset of the first functionality of the graphical program.

5. The node of claim 4, wherein the node icon visually indicates the specific function.

6. The node of claim 4, wherein, during execution of the graphical program, the first set of program instructions are executable to:

receive input specifying a modification to at least one of the properties; and

modify the at least one of the properties in response to the input to configure the object to perform the specific function.

7. The node of claim 1, wherein the object comprises a software object.

8. The node of claim 7, wherein the software object comprises a graphical program element.

9. The node of claim 8, wherein the graphical program element comprises a function node comprised in the graphical program.

10. The node of claim 9,

wherein the function specific property node comprises a timing property node; and

wherein the graphical program element comprises a timing node, operable to provide timing functionality for the graphical program.

11. The node of claim 9,

wherein the function specific property node comprises a triggering property node; and

wherein the graphical program element comprises a triggering node, operable to provide triggering functionality for the graphical program.

12. The node of claim 9,

wherein the function specific property node comprises a read property node; and

wherein the graphical program element comprises a read node, operable to provide data acquisition (DAQ) functionality for the graphical program.

13. The node of claim 9,

wherein the function specific property node comprises a write property node; and

wherein the graphical program element comprises a write node, operable to provide signal generation functionality for the graphical program.

14. The node of claim 9,

wherein the graphical program element comprises a channel creation node, operable to create a channel for the graphical program; and

wherein the function specific property node comprises a channel property node, operable to access channel properties of the created channel.

15. The node of claim 7,

wherein the function specific property node comprises a calibration information property node; and

wherein the object comprises a calibration information data structure, storing calibration information for a device used by the graphical program.

16. The node of claim 7,

wherein the function specific property node comprises an export signal property node; and

wherein the object comprises an export signal data structure, storing export signal data for the graphical program.

17. The node of claim 7,

wherein the function specific property node comprises a switch channel property node; and

wherein the object comprises a switch channel specification for the graphical program.

18. The node of claim 7,

wherein the function specific property node comprises a switch scan property node; and

wherein the object comprises a switch scanning task specification for the graphical program.

19. The node of claim 7,

wherein the function specific property node comprises a scale property node; and

wherein the object comprises a scale specification for the graphical program.

20. The node of claim 7,

wherein the function specific property node comprises a system property node; and

wherein the object comprises a data structure storing software configuration information for a host computer system.

21. The node of claim 7,

wherein the function specific property node comprises a task property node; and

wherein the object comprises a data structure storing general task information, including one or more of:

a task name;

one or more channel names;

a number of channels; and

a task status indicator.

22. The node of claim 4,

wherein the function specific property node comprises a device property node; and

wherein the object comprises a hardware device.

23. The node of claim 22, wherein the hardware device comprises a DAQ device.

24. The node of claim 22, wherein the hardware device comprises a signal generation device.

25. The node of claim 22,

wherein the function specific property node comprises a switch device property node; and

wherein the hardware device comprises a switch device.

26. The node of claim 1, wherein, at edit time, the first set of program instructions are executable to:

display available properties of the object, including the plurality of properties; and

receive first user input indicating the plurality of properties;

wherein the access to the plurality of properties is provided in response to the received first user input.

27. The node of claim 26, wherein, prior to receiving the first user input, the first set of program instructions are executable to:

display one or more filtering options for the available properties of the object, including the plurality of properties;

receive second user input indicating a first filtering option of the one or more filtering options; and

display a first subset of the available properties in accordance with the first filtering option;

wherein the plurality of properties is determined in response to the received second user input and the received first user input.

28. The node of claim 27, wherein the first set of program instructions are further executable to receive third user input and display the one or more filtering options in response to the third user input.

29. The node of claim 26,

wherein the first set of program instructions are further executable to:

display one or more filtering options for the available properties of the object;

wherein the first user input indicating the plurality of properties comprises:

second user input indicating a first filtering option of the one or more filtering options;

wherein the first set of program instructions are further executable to:

display a first subset of the available properties in accordance with the first filtering option, including the plurality of properties; and

wherein the first input indicating the plurality of properties further comprises:

third user input indicating the plurality of properties from the first subset of the available properties.

30. The node of claim 26, wherein the first set of program instructions are executable to receive second user input and display the available properties of the object in response to the second user input.

31. The node of claim 1, wherein, during execution of the graphical program, the first set of program instructions are executable to:

read at least one of the plurality of properties from the object; and

provide the at least one property to a graphical program element comprised in the graphical program.

32. The node of claim 31, wherein the graphical program element comprises a GUI, wherein the GUI is operable to display the at least one property during execution of the graphical program.

33. The node of claim 31, wherein the graphical program element is executable to perform a respective function based on the at least one property.

34. A memory medium which stores program instructions which are executable to:

display a node icon in a graphical program, wherein the graphical program is operable to perform first functionality; and

couple the node icon to a pre-defined object in response to user input, wherein the node icon is associated with a first set of program instructions, wherein the first set of program instructions are executable to only provide access to a plurality of properties corresponding to the pre-defined object, wherein the plurality of properties specify a configuration of the object, and wherein the object is associated with a subset of the first functionality of the graphical program.

35. The memory medium of claim 34, wherein the first program instructions are further executable to:

display available properties of the object, including the plurality of properties; and

receive first user input indicating the plurality of properties;

wherein the access to the plurality of properties is provided in response to the received first user input.

36. The memory medium of claim 34, wherein the program instructions are further executable to:

execute the graphical program;

wherein during execution of the graphical program, the first program instructions are further executable to:

receive input specifying a modification to at least one of the properties; and

modify the at least one of the properties in response to the input to configure the object to perform a specific function, wherein the specific function comprises the subset of the first functionality of the graphical program.

37. The memory medium of claim 34, wherein the program instructions are further executable to:

execute the graphical program;

wherein during execution of the graphical program, the first program instructions are further executable to:

read at least one of the properties from the pre-defined object; and

provide the at least one of the properties to a graphical program element of the graphical program.

38. The memory medium of claim 37, wherein the graphical program element operates to display the at least one of the properties.

39. A memory medium which stores a function specific property node for use in a graphical program, the node comprising:

a node icon operable to be displayed in the graphical program, wherein the graphical program is operable to perform first functionality; and

a first set of program instructions associated with the node icon, wherein the first set of program instructions are executable to only provide access to a plurality of properties corresponding to a pre-defined object, wherein the plurality of properties specify a configuration of the object, and wherein the object is associated with a subset of the first functionality of the graphical program.

40. A timing property node for use in a graphical program, the node comprising:

a timing property node icon operable to be displayed in the graphical program, wherein the graphical program is operable to perform first functionality; and

a first set of program instructions executable to provide access to a plurality of properties corresponding to a timing function, wherein the plurality of properties specify timing functionality for the graphical program, and wherein the timing functionality is a subset of the first functionality of the graphical program.

41. The timing property node of claim 40, wherein the timing property node icon visually indicates the timing function.

42. The timing property node of claim 40, wherein, during execution of the graphical program, the first set of program instructions are executable to modify at least one of the properties to configure the timing function.

43. The timing property node of claim 40, wherein, during execution of the graphical program, the first set of program instructions are executable to:

read at least one of the plurality of properties from the timing function; and

provide the at least one property to a graphical program element comprised in the graphical program, wherein the graphical program element operates to perform a respective function based on the at least one property.

44. The timing property node of claim 43, wherein the graphical program element comprises a GUI element, and wherein the GUI element executes to display the at least one property.

45. The timing property node of claim 40, wherein, at edit time, the first set of program instructions are executable to:

display available properties of the timing function, including the plurality of properties; and

receive first user input indicating the plurality of properties;

wherein the access to the plurality of properties is provided in response to the received first user input.

46. The timing property node of claim 40, wherein, during execution of the graphical program, the first set of program instructions are executable to:

receive input specifying a modification to at least one of the properties; and

modify the at least one of the properties in response to the input to configure the timing function to perform a specific timing function, wherein the specific read function comprises the subset of the first functionality of the graphical program.

47. The timing property node of claim 40, wherein the plurality of properties specify a configuration of a timing function node.

48. A triggering property node for use in a graphical program, the node comprising:

a triggering property node icon operable to be displayed in the graphical program, wherein the graphical program is operable to perform first functionality; and

a first set of program instructions executable to provide access to a plurality of properties corresponding to a triggering function, wherein the plurality of properties specify triggering functionality for the graphical program, and wherein the triggering functionality is a subset of the first functionality of the graphical program.

49. The node of claim 48, wherein the triggering property node icon visually indicates the triggering function.

50. The node of claim 48, wherein, during execution of the graphical program, the first set of program instructions are executable to modify at least one of the properties to configure the triggering function.

51. The node of claim 48, wherein, during execution of the graphical program, the first set of program instructions are executable to:

read at least one of the plurality of properties from the triggering function; and

provide the at least one property to a graphical program element comprised in the graphical program, wherein the graphical program element operates to perform a respective triggering function based on the at least one property.

52. The node of claim 51, wherein the graphical program element comprises a GUI element, and wherein the GUI element executes to display the at least one property.

53. The node of claim 48, wherein, at edit time, the first set of program instructions are executable to:

display available properties of the triggering function, including the plurality of properties; and

receive first user input indicating the plurality of properties;

wherein the access to the plurality of properties is provided in response to the received first user input.

54. The node of claim 48, wherein, during execution of the graphical program, the first set of program instructions are executable to:

receive input specifying a modification to at least one of the properties; and

modify the at least one of the properties in response to the input to configure the triggering function to perform a specific triggering function, wherein the specific triggering function comprises the subset of the first functionality of the graphical program.

55. The timing property node of claim 48, wherein the plurality of properties specify a configuration of a triggering function node.

56. A read property node for use in a graphical program, the node comprising:

a read property node icon operable to be displayed in the graphical program, wherein the graphical program is operable to perform first functionality; and

a first set of program instructions executable to provide access to a plurality of properties corresponding to a read function, wherein the plurality of properties specify read functionality for the graphical program, and wherein the read functionality is a subset of the first functionality of the graphical program.

57. The read property node of claim 56, wherein the read property node icon visually indicates the read function.

58. The read property node of claim 56, wherein, during execution of the graphical program, the first set of program instructions are executable to modify at least one of the properties to configure the read function.

59. The read property node of claim 56, wherein, during execution of the graphical program, the first set of program instructions are executable to:

read at least one of the plurality of properties from the object; and

provide the at least one property to a graphical program element comprised in the graphical program, wherein the graphical program element operates to perform a respective read function based on the at least one property.

60. The read property node of claim 59, wherein the graphical program element comprises a GUI element, and wherein the GUI element executes to display the at least one property.

61. The read property node of claim 56, wherein, at edit time, the first set of program instructions are executable to:

display available properties of the read function, including the plurality of properties; and

receive first user input indicating the plurality of properties;

wherein the access to the plurality of properties is provided in response to the received first user input.

62. The read property node of claim 56, wherein, during execution of the graphical program, the first set of program instructions are executable to:

receive input specifying a modification to at least one of the properties; and

modify the at least one of the properties in response to the input to configure the read function to perform a specific read function, wherein the specific read function comprises the subset of the first functionality of the graphical program.

63. The read property node of claim 56, wherein the plurality of properties specify a configuration of a read function node.

64. A write property node for use in a graphical program, the node comprising:

a write property node icon operable to be displayed in the graphical program, wherein the graphical program is operable to perform first functionality; and

a first set of program instructions executable to provide access to a plurality of properties corresponding to a write function, wherein the plurality of properties specify write functionality for the graphical program, and wherein the write functionality is a subset of the first functionality of the graphical program.

65. The write property node of claim 64, wherein the write property node icon visually indicates the write function.

66. The write property node of claim 64, wherein, during execution of the graphical program, the first set of program instructions are executable to modify at least one of the properties to configure the write function.

67. The write property node of claim 64, wherein, during execution of the graphical program, the first set of program instructions are executable to:

read at least one of the plurality of properties from the object; and

provide the at least one property to a graphical program element comprised in the graphical program, wherein the graphical program element operates to perform a respective write function based on the at least one property.

68. The write property node of claim 67, wherein the graphical program element comprises a GUI element, and wherein the GUI element executes to display the at least one property.

69. The write property node of claim 64, wherein, at edit time, the first set of program instructions are executable to:

display available properties of the write function, including the plurality of properties; and

receive first user input indicating the plurality of properties;

wherein the access to the plurality of properties is provided in response to the received first user input.

70. The write property node of claim 64, wherein, during execution of the graphical program, the first set of program instructions are executable to:

receive input specifying a modification to at least one of the properties; and

modify the at least one of the properties in response to the input to configure the write function to perform a specific write function, wherein the specific write function comprises the subset of the first functionality of the graphical program.

71. The write property node of claim 64, wherein the plurality of properties specify a configuration of a write function node.

72. A channel property node for use in a graphical program, the node comprising:

a channel property node icon operable to be displayed in the graphical program, wherein the graphical program is operable to perform first functionality; and

a first set of program instructions executable to provide access to a plurality of properties corresponding to a channel, wherein the plurality of properties specify a channel configuration for the graphical program, and wherein the channel configuration is a subset of the first functionality of the graphical program.

73. The channel creation property node of claim 72, wherein the channel property node icon visually indicates the channel configuration.

74. The channel creation property node of claim 72, wherein, during execution of the graphical program, the first set of program instructions are executable to modify at least one of the properties to configure the channel.

75. The channel creation property node of claim 72, wherein, during execution of the graphical program, the first set of program instructions are executable to:

read at least one of the plurality of properties from the channel; and

provide the at least one property to a graphical program element comprised in the graphical program, wherein the graphical program element operates to perform a respective channel configuration function based on the at least one property.

76. The channel creation property node of claim 75, wherein the graphical program element comprises a GUI element, and wherein the GUI element executes to display the at least one property.

77. The channel creation property node of claim 72, wherein, at edit time, the first set of program instructions are executable to:

display available properties of the channel, including the plurality of properties; and

receive first user input indicating the plurality of properties;

wherein the access to the plurality of properties is provided in response to the received first user input.

78. The channel creation property node of claim 72, wherein, during execution of the graphical program, the first set of program instructions are executable to:

receive input specifying a modification to at least one of the properties; and

modify the at least one of the properties in response to the input to configure the channel to perform a specific channel function, wherein the specific function comprises the subset of the first functionality of the graphical program.

79. The channel creation property node of claim 72, wherein the plurality of properties specify a configuration of a channel creation function node.

80. A function specific property node for use in a graphical program, the node comprising:

a node icon operable to be displayed in the graphical program, wherein the graphical program is operable to perform first functionality; and

a first set of program instructions associated with the node icon, executable to provide access to a plurality of properties corresponding to a fixed specific function, wherein the plurality of properties specify a configuration of the specific function, wherein the specific function is a subset of the first functionality of the graphical program.

81. A memory medium which stores a function specific property node for use in a graphical program, the node comprising:

a node icon operable to be displayed in the graphical program, wherein the graphical program is operable to perform first functionality; and

a first set of program instructions associated with the node icon, executable to provide access to a plurality of properties corresponding to a fixed specific function, wherein the plurality of properties specify a configuration of the specific function, wherein the specific function is a subset of the first functionality of the graphical program.